



Volunteer Lake Assessment Program Individual Lake Reports

GARDNER, LAKE, BATH, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	141	Max. Depth (m):	4.7	Flushing Rate (yr ⁻¹)	0.8	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	25	Mean Depth (m):	2.6	P Retention Coef:	0.81			
Shore Length (m):	1,100	Volume (m ³):	256,500	Elevation (ft):	665			

TROPHIC CLASSIFICATION

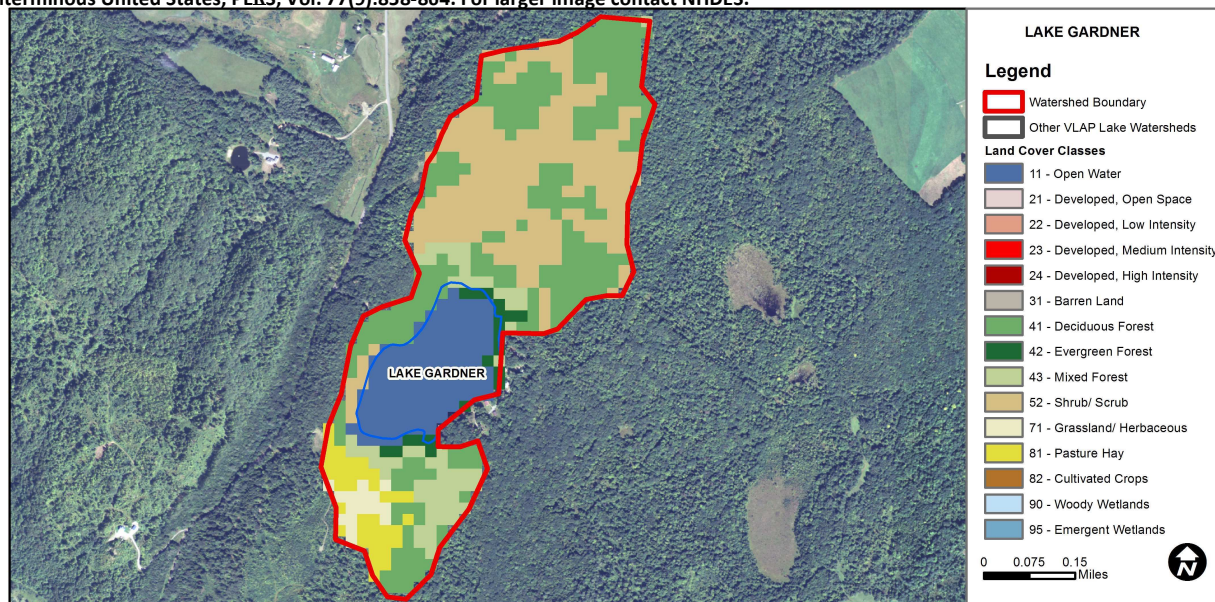
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Encouraging	< 10 samples and no exceedance of criteria. More data needed.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	15.2	Barren Land	0	Grassland/Herbaceous	2.24
Developed-Open Space	0	Deciduous Forest	35.24	Pasture Hay	5.17
Developed-Low Intensity	0	Evergreen Forest	2.8	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	8.39	Woody Wetlands	0
Developed-High Intensity	0	Shrub-Scrub	31.19	Emergent Wetlands	0



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

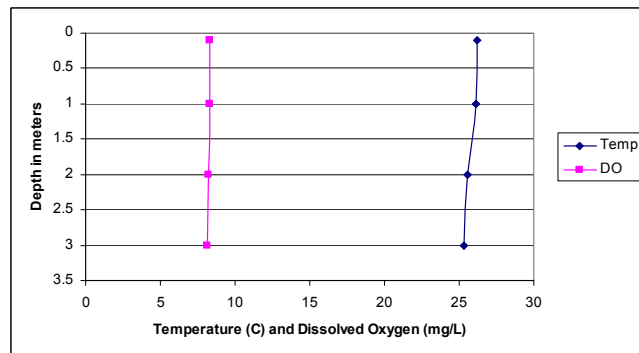
GARDNER LAKE, BATH, NH

2012 DATA SUMMARY

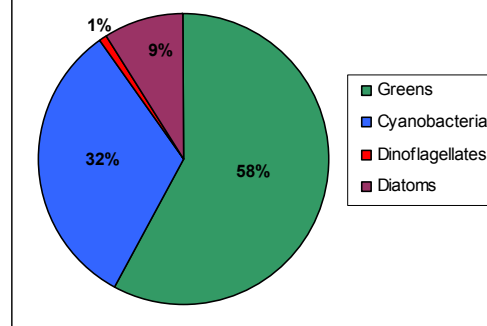
OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- CHLOROPHYLL-A:** 2012 average chlorophyll levels were slightly less than those measured in previous years.
- CONDUCTIVITY/CHLORIDE:** Conductivity levels were average for most NH lakes and increased slightly during low flow conditions in August.
- E. COLI:** E. coli levels around the lake were very low and well below the state standards for public beaches and surface waters.
- TOTAL PHOSPHORUS:** Deep spot phosphorus levels were slightly above the NH lake median but consistent with historical levels.
- TRANSPARENCY:** Transparency was slightly higher in 2012 than previous years and the Secchi disk was visible on the pond bottom in June. Submerged aquatic plant growth hindered Secchi disk viewing in August.
- TURBIDITY:** Deep spot turbidity was low in 2012. Turbidity levels in Scruggs Inlet were elevated in August likely due to low flow conditions.
- pH:** pH levels at the deep spot, Outlet, Scruggs Inlet and Underground Spring were sufficient to support aquatic life. pH levels at Minot Inlet and Vesilind Inlet were lower than desirable however this is likely due to natural causes.
- RECOMMENDED ACTIONS:** Continue collecting monthly water quality samples to build a baseline of lake water quality data. Observe the lake for any signs of cyanobacteria blooms in late summer. Keep up the great work!

Dissolved Oxygen & Temperature Profile



Gardner Lake Phytoplankton Population



Station Name	Table 1. 2012 Average Water Quality Data for LAKE GARDNER									
	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Cove					6					
Deep Epilimnion	11.7	2.37	3	44.0		15	3.08	2.69	0.87	6.95
Minot Inlet				36.1		8			1.54	6.22
Outlet				43.7		12			1.14	6.84
Ricker					5					
Scruggs Inlet				58.6		14			2.53	6.7
Shady Lane					1					
Simmonds					0					
Underground Spring				60.3		11			1.15	6.66
Valentin					5					
Vesilind Inlet				36.3		8			0.87	6.15

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	N/A	More data necessary to conduct trend analysis.
Transparency	N/A	More data necessary to conduct trend analysis.
Phosphorus (epilimnion)	N/A	More data necessary to conduct trend analysis.

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Historical Deep Spot Chlorophyll-a, Epilimnetic Total Phosphorus & Transparency Data

